REMARKS

These remarks are in response to the Office Action mailed February 22, 2006. As required by the Examiner, an abstract of the disclosure is attached on a separate sheet for this application.

Claim 1

Claim 1 is directed to a proof generation method that includes receiving halftoned print data that has been produced by a first halftoning technique, and applying a different halftoning technique to that print data. The claim also sets forth that the first and second halftoning techniques are selected to (a) cause a dot size in the data provided to the proofing printer to substantially match a dot size for the halftone printing press, and (b) cause a proof produced by the proofing printer to substantially match the color of a print produced by the target halftone printing press.

By superimposing two halftoning techniques, the claimed method can yield a proof that represents both the halftone pattern and the colors of a press. This can allow *Moiré* patterns on the press to be predicted from the proof more accurately. And predicting *Moiré* patterns can allow a user to correct them before undertaking the potentially expensive and time consuming task of running the print job on the press.

Claim 1 stands rejected as obvious over Spence in view of Rylander. As shown in Fig. 1, reproduced below, Spence discloses an image matching technique in which a set of digital separations 110 can be used to obtain a set of screened halftone separations 120 or can be used directly within a Direct Digital Color Proofing system (DDCP) 143 (col. 13, lines 42-45).

Rylander discloses turning off at least some points to produce a thinned halftoned dot pattern. The dots can be turned off by performing a logical AND operation between a core component of a halftone dot and a mask cell. Rylander states that his thinned halftone dot patterns enable a wider range of shade values.

The Office Action points to Spence's digital separations 110 and halftone separations 120, and argues that they are at least comparable.

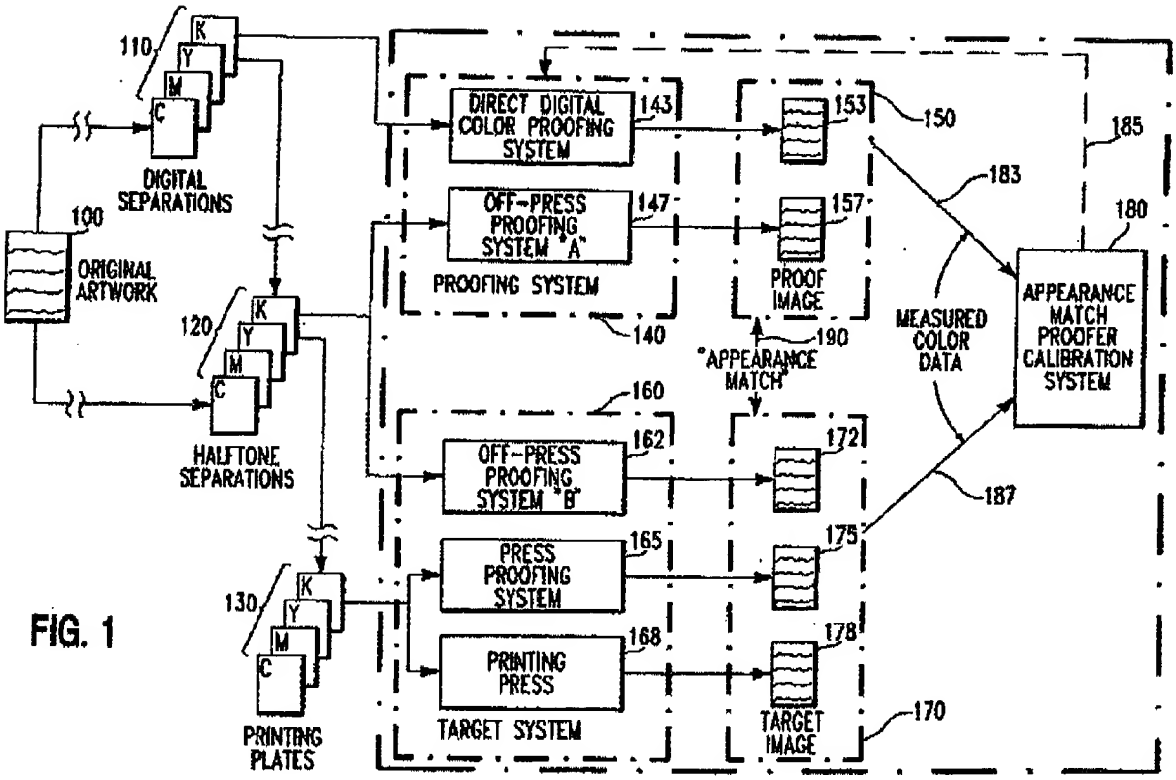

FIG. 1

Applicant again respectfully requests reconsideration because Spence's disclosure clearly shows that the process of producing digital separations it employs is not a halftoning process. Color separations are derived by isolating each color from an image so that they can be printed with different ink colors, while halftone screens are used to convert continuous images into images made up of dots where the size or frequency of the dots determines different levels of shading. When preparing a continuous tone image for printing on a commercial printing press, it is not uncommon to perform both a color separation and a halftoning operation, and the result is a set of halftone separations. It may therefore sometimes be tempting for graphic artists to think of the two operations as a single process, and their software or printer may only make them available together. But it is clearly not always necessary to perform both of these operations together. Continuous tone printers, for example, can print from color separations that are not halftoned.

And the two operations are clearly not performed together in the separation block in the Spence system because Spence's DDCP 143 accepts continuous-tone images. This

is apparent at col. 12, lines 41-49 of US Pat. No. 5,293,539 (Apl. No. 07/782,940) to which the reader is referred for a description of the direct digital color proofing system 143 at col. 14, lines 13-14:

> "Specifically, as shown, DDCP system 100 is connected to and obtains continuous tone image data (emphasis added)."

And because the DDCP receives its input from the digital separations block 110, as shown in Fig. 1, it is clear that this block does not perform a halftoning operation--only a color separation.

Rylander does not disclose or suggest the concept of two different halftoning operations either. Rylander instead discloses thinning of halftone dots by turning "off" at least some points in a core component of a halftone dot, such as by performing a logical AND operation on the core component and a mask. But there is no indication in the Rylander patent that this logical AND operation can be considered a halftone operation. Rylander only discloses a masking operation that subtracts data from the dot. And, by itself, subtracting data from dots is not sufficient to be considered halftoning. Even assuming arguendo that the Spence-Rylander combination is proper, therefore, such a combination still fails to disclose the application of two different halftoning methods to a same data set.

The Spence-Rylander combination fails to disclose or suggest that two different halftoning methods should be applied to (a) cause a dot size in the data provided to the proofing printer to substantially match a dot size for the halftone printing press, and (b) cause a proof produced by the proofing printer to substantially match the color of a print produced by the target halftone printing press. These teachings are completely absent from both patents. Spence makes no mention of trying to match colors and dot sizes in a proof through halftoning functionality, and Rylander is not concerned with matching proofs and prints at all--only achieving a wider range of tone values.

Applicant also respectfully submits that the Spence-Rylander combination is improper. The Office Action argues that it would have been obvious to select Rylander's two halftoning techniques and apply them to Spence. But, as discussed above, neither Spence nor Rylander perform two halftoning techniques. Instead, Rylander performs a thinning operation, while Spence performs a color separation. It is difficult to see how

one of ordinary skill in the art, without the benefit of hindsight, would be motivated to combine these disparate elements from different types of systems. The combination is also not supported by any evidence of record.

For the reasons presented above, claim 1, as now amended, should be allowable over the prior art of record. Independent claims 17 and 18, as now amended, also distinguish over the prior art of record for at least reasons similar to those advanced in support of claim 1.

Claim 19

Claim 19 is directed to a proof generation method for ink jet proof printers that includes receiving print data to which a first halftoning technique has been applied to obtain screen image data representing a plurality of screen dots. The invention also includes creating one or more lightened areas, where direct deposition of colorant is to be lightened within a sub-area of at least some of the screen dots to be printed. The method is optimized to accurately reproduce the shaded visual image that would be printed on a printing press by (a) causing a dot size in the data provided to the proofing printer to substantially match a dot size for the halftone printing press, and (b) causing a proof produced by the proofing printer to substantially match the color of a print produced by the target halftone printing press.

The lightened areas are within the edges of the dot. They therefore allow dots to be made to appear lighter, without changing their size. This can allow copy from a proof printer to more closely match the dot sizes and colors of a particular printing press, even if the color densities of the inks used on the two machines do not match. And more closely matched dots can make it easier to evaluate a proof for *Moiré* issues before undertaking the potentially expensive and time consuming task of running a corresponding print job on the press.

Claim 19 stands rejected as obvious over Spence in view of Rylander. But neither Spence nor Rylander teach lightening areas within the edges of screen dots in a method that is optimized to accurately reproduce the shaded visual image that would be printed on a printing press by (a) causing a dot size in the data provided to the proofing printer to substantially match a dot size for the halftone printing press, and (b) causing a proof

produced by the proofing printer to substantially match the color of a print produced by the target halftone printing press. Spence instead tries to match colors on a dye sublimation printer to output of an offset press by determining changes in values of process color solid and tint densities. But these changes are then converted to dot size recommendations (col. 24, lines 37-38, col. 24, lines 32-34). Nowhere in Spence is there any disclosure or suggestion to lighten areas within the edges of screen dots, nor does Spence address matching dot sizes and colors in any meaningful way. And Rylander is not concerned with matching proofs and prints at all--only achieving a wider range of tone values.

For the reasons presented above, claim 19, as now amended, should be allowable over the prior art of record. Independent claims 24-26, as now amended, also distinguish over the prior art of record for at least reasons similar to those advanced in support of claim 19.

Claim 34

Claim 34 as now amended is directed to a proof generation method for ink jet proof printers that includes receiving print data to which a first halftoning technique has been applied. The method also includes altering at least a plurality of areas distributed within the edges of at least some of the dots with substantially the same color alteration, and providing the data to a proofing printer different from the target halftone printing press. The step of altering alters the areas to include a same color that is different from the color of the dots.

Performing substantially the same color alterations in the dots allows their color to be changed, without changing their size. This can permit copy from a proof printer to more closely match the dots of a particular printing press, even if the inks used on the two machines do not match. And more closely matched dots can make it easier to evaluate a proof for *Moiré* issues before undertaking the potentially expensive and time consuming task of running a corresponding print job on the press.

Claim 34 stands rejected as obvious over Spence in view of Rylander. But neither Spence nor Rylander teach performing substantially the same color alteration in a plurality of dots, where the alteration alters the areas to include a color that is different

from the color of the dots. As presented above, Spence instead tries to match colors on a dye sublimation printer to output of an offset press by determining changes in values of process color solid and tint densities. But these changes are then converted to dot size recommendations (col. 24, lines 37-38, col. 24, lines 32-34).

And, as presented above, Rylander discloses thinning dots to achieve a wider range of shade values. But his reason for thinning dots is to prevent significant overlap between printed ink spots (Abstract, lines 13-15). To then add a different color within the dots would not be consistent with this goal. If anything, therefore, Rylander teaches away from the invention as now claimed in amended claim 34.

For the reasons presented above, claim 34, as now amended, should be allowable over the prior art of record. Independent claims 32, 33, 40 and 41, as now amended, also distinguish over the prior art of record for at least reasons similar to those advanced in support of claim 34. The remaining claims are dependent, and should be allowable for at least the reason that they depend on an allowable claim.

This application should now be in condition for allowance and such action is respectfully requested. The Commissioner is hereby authorized to charge any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0750.

Respectfully submitted,

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Dated

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